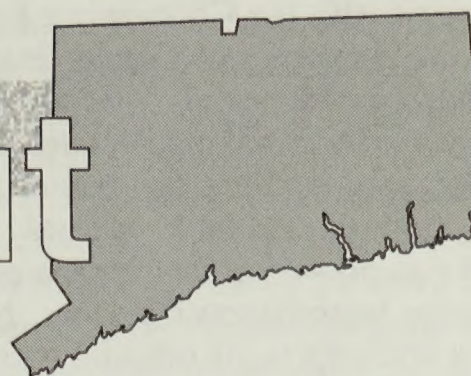


Connecticut



Most of Connecticut's geographic information and GIS efforts have occurred within the Natural Resources Center in the Department of Environmental Protection (DEP), beginning in 1972 when the agency was created. Until 1991, DEP informally led GIS coordination in Connecticut. Through its efforts, statewide topographic mapping and digital data have been developed, particularly with a focus on data developed to meet water resources needs. Many activities have been underway between state government and substate entities, including regional planning agencies (RPAs) and municipalities, both in general and as regards geographic information and GIS, including exchange of digital data with RPAs. Increasing interest within state agencies, RPAs, and municipalities led to a legislator's request in early 1991 that the Office of Policy and Management (OPM) form and staff a group to help evaluate Connecticut's current and potential GIS activities and related needs. Its Policy Development and Planning Division (PDPD) is leading this new GIS Work Group in coordination with OPM's Intergovernmental Policy Division and Office of Information and Technology. State agencies participating in the group include DEP, the Department of Transportation, the Department of Health Services, and the Department of Administrative Services' Bureau of General and Technical Services.

1 Origins of State Initiatives

Connecticut has a long history of interest and concern in planning for its land and water resources by using geographic information. Beginning in the late 1960s, it began efforts with the Connecticut Interregional Planning Program (CIPP). This effort helped lead to the development of aerial photography coverage of the state, which was photo-interpreted and digitized in 1970 into 55 land use categories. In the mid-1970s, CIPP evolved into Connecticut's current statewide planning process, which creates the State Plan of Conservation and Development.

Natural resource information coordination had an early beginning with the formation of the Natural Resources Center (NRC) in the Department of Environmental Protection (DEP) in 1972.

The center was charged at that time with serving as the research arm for DEP's commissioner, and with being responsible for maintaining environmental and natural resource information for use by the rest of the department. The mission of the center was to inventory related systems and information and explain the relationship between them to assist scientists, the public and other decision makers.

During the 1970s, NRC was given additional responsibilities, including development of a long-range comprehensive water resources management plan for the state. Activities included cooperative efforts with the U.S. Geological Survey (USGS) for topographic mapping and subsequent digital versions of these maps. NRC also provided training and assistance to planning, zoning, conserva-

tion and wetlands management officials in each of the state's municipalities. Training series were conducted with the Cooperative Extension Service at the University of Connecticut to train officials how to understand, develop, and use natural resources data in making land use decisions. NRC also began compiling an annual town-by-town description of available natural resource data which was printed in the center's annual Natural Resources Information Directory. NRC has functioned similarly to its original mandate from its inception to the present.

In 1984, NRC's director, who also served as Connecticut State Geologist at that time, initiated the first GIS cooperative effort in the country between the USGS and a state government. Referred to as the *Mystic Project*, all four divisions of the USGS and NRC worked together to test the use of GIS to integrate data from a variety of sources for two 7.5 minute quadrangles. A comprehensive and multi-disciplinary approach was adopted, with four applications developed to help test GIS utility for vertical and horizontal data integration. These applications included an industrial site selection model, a public water supply groundwater exploration model, database generation for three-dimensional groundwater modeling, and a seven-day, ten-year low flow model. The successful results of the project were presented nationally beginning in 1985.

In 1984, Natural Resources Center's director, who also served as Connecticut State Geologist at that time, initiated the first GIS cooperative effort in the country between the USGS and a state government.

During 1985, NRC and USGS began a cooperative effort to develop DLGs at the 1:24,000 scale, which was completed for statewide coverage in 1989. Following the Mystic demonstration project, GIS software was installed at NRC in 1986, with initial efforts directed toward water supply planning applications. Funding was provided by the Water Resource Planning Program. The legislature approved the development of a tabular water supply database shared by DEP and the Department of Health Services. This database was later used with GIS. Applications expanded after the initial installation, and additional copies of software were purchased. Staffing for GIS was originally provided by other parts of NRC. As GIS activities grew, the GIS and Cartography Section was officially established in 1988, and a steadily

increasing funding and staffing level also resulted. During the late 1980s, coordination and use of natural resource data continued to grow.

The Office of Policy and Management (OPM) initiated an informal GIS interest group in the late 1980s, and then organized a statewide meeting in 1988 to help educate state agencies, academic institutions, regional planning agencies (RPAs), and localities about GIS. Statewide efforts were limited after the meeting; however, two RPAs and some municipalities subsequently acquired GIS technology.

Coordination Efforts, Groups and Activities

Statewide geographic information coordination has been a focus of concern in Connecticut since the late 1980s. Informal inter-agency groups have been formed among program-and technical-level staff of state agencies during the last two years, but without directive or top-level authorization. At the same time, the Department of Environmental Protection (DEP) began efforts to improve intra-agency coordination, and it has been working on an increasing number of GIS projects with other agencies, regional planning groups, and utilities.

Early in 1991, following inquiries by municipalities, some legislators expressed an increasing interest in GIS and the need for its coordinated development in the state. While a legislative directive was not provided, a request was made that an effort be undertaken to address statewide issues, and to prepare findings and recommendations for further action. The Office of Policy and Management (OPM) and its Intergovernmental Policy Division, the Policy Development and Planning Division (PDPD), and the state's Office of Information and Technology (OIT), were asked to convene a group of technical and policy level representatives of state agencies, including those with GIS activities underway. This group became known as the GIS Work Group. Participating agencies include OPM, DEP, the Department of Transportation, the Department of Health Services, and the Department of Administrative Services' Bureau of General and Technical Services (BGTS), which provides statewide data processing services. This group has met every other week since March, 1991 to develop a statewide approach, though funds were not provided for the effort.

With support from OPM's leadership, the group is working to identify and investigate issues in state government, and will then address the state's role beyond state government, including its

regional planning agencies (RPAs), utilities, and municipalities. Following the investigation of state government, the group is expected to include other state entities in the evaluation. Efforts are underway to conduct an inventory of state agency activities in the summer of 1991. Not confined to GIS activities only, the survey will include all information that can be referenced by location, and the group's efforts are expected to be expanded to include other geographic information as well as GIS.

A major focus of the group is the need for data sharing and public access, including Freedom of Information Act concerns. Connecticut has a unique Freedom of Information Commission. Discussions are underway to ensure that data, including digital geographic data, is made available to the public, and various legislative proposals are being considered in this regard. Discussions of the GIS Work Group include the proposal that one agency might serve as a clearinghouse for geographic information. The need has been identified for conducting projects to reveal how information can be used as an integrating force among programs in order to meet various state government missions. An initial effort being considered is that with the Department of Economic Development, which is developing an economic development information system. Geographic information and GIS are seen potentially as an integral part of the system.

*The Natural Resource Center and the
Homer Babbidge Library at the University
of Connecticut are the state's co-affiliates in
USGS's Earth Science Information
Center program.*

It is anticipated that this coordination effort will be beneficial to state and substate interests in a variety of ways. For example, the State Plan of Conservation and Development is a statewide policy-level land and water use plan which is developed with participation of state agencies, RPAs, and municipalities. It is expected that the GIS Work Group will assist in the development of a strengthened capability to use geographic information and GIS within state, regional and local planning processes. Connecticut's statewide planning efforts are also led by PDPD.

Negotiations are underway with the state of Rhode Island and its "Rhode Island GIS" (RIGIS) to have a signed memorandum of agreement between the two states. The agreement, in draft

form, provides for RIGIS and DEP's GIS to "establish a formal long-term relationship" for "sharing information contained within the digital databases of each organization's GIS." It provides that each state's GIS organization will have "open access to unrestricted data sets" of the other state and will refrain from distribution of such data unless authorized. The agreement also provides that each state will inform the other of significant updates, additions and corrections in their respective databases; notify each other of any new projects underway using the other state's data; and provide copies of reports or maps produced by using the other state's data. (See Rhode Island profile).

Regional and Local Government Relations

Historically, many coordination efforts have been underway between state government and regional planning agencies (RPAs) and municipalities, both in general and as regards geographic information and GIS (Connecticut does not have county governments). Municipal home rule authority is strong in Connecticut, and many aspects of environmental protection in Connecticut are the responsibility of local governments. In many cases, RPAs and municipalities are required to conduct work and to provide resulting information to DEP. Educational programs have accompanied these efforts. DEP and OPM have conducted presentations and workshops for regional and local agencies regarding GIS and TIGER data.

DEP has been providing and exchanging digital geographic information with some RPAs, utilities, municipalities, and water utilities coordinating committees. For example, as part of the aquifer protection program, a few agreements have been signed with RPAs to develop and share digital data, specifically for aquifer recharge area coverages. These agreements also require that data meet NRC standards, and NRC provides its digital data to the RPAs. In turn, RPAs assist municipalities in their related efforts.

Policies/Standards

Within DEP's Natural Resources Center, policies and standards have been adopted for digital mapping "to insure the integrity and quality of the Connecticut Standardized Digital Cartographic Data Base." NRC adopted 1:24,000 as the state's base scale, and DLGs as a standard. Its policies also state that the center will serve as the central clearinghouse for distribution of the database, that the database user community should support and develop the database and GIS maintained by the center, and that a formal system for user feedback should be developed.

The 1990 *Directory of Digital Cartographic Data*, includes three pages of database standards for accuracy and its verification; a coordinate

reference system; vertical and horizontal datums; and data documentation, including costs and formats. NRC has also adopted de facto standards related to GIS operations that may be adopted in a final form by the commissioner to be applied agency-wide.

3 GIS in State Government

The **Office of Policy and Management (OPM)** includes three divisions now involved in geographic information coordination, including the Inter-governmental Policy Division, the Policy Development and Planning Division and the Office of Information and Technology. It also includes the state's budget office. The **Policy Development and Planning Division (PDPD)** has statewide policy and planning responsibility and includes the state's Census Data Center. Efforts are underway to make Census data, including TIGER line data, available to state, regional and local users. OPM is leading Connecticut's new statewide GIS Work Group, which is chaired and staffed by the director of OPM's PDPD. The **Office of Information and Technology (OIT)** is responsible for statewide strategic planning for information technology. It helps agencies develop and approves their information technology plans. OIT also approves all related agency procurements, and it has operational responsibility for state telecommunications services. The **Department of Administrative Services' Bureau of General and Technical Services (BGTS)** provides statewide data processing services.

The **Department of Environmental Protection (DEP)** is Connecticut's environmental and natural resources agency, and is active in management, planning, regulatory and research programs. Created in 1972, it is composed of two bureaus, including Environmental Services and Administration; two branches, including Environmental Conservation, which contains natural resource-oriented bureaus; and Environmental Quality, which conducts environmental regulatory functions with the Bureaus of Water, Waste and Air Management. GIS activities are concentrated in the Bureau of Environmental Services and the Branch of Environmental Quality.

DEP has adopted a document entitled *ENVIRONMENT/2000*, which describes the agency's goals and strategies. It identifies the establishment and maintenance of GIS and corresponding standardized natural resource and environmental data as necessary for effective environmental management. DEP has an informal GIS Coordinating Committee that is working on the development of a plan and the coordination of hardware, soft-

ware and data in DEP. The plan will include an initiative to develop a distributed system for GIS. This plan was initiated and is being developed by DEP's Natural Resources Center.

The **Bureau of Environmental Services** includes the **Natural Resources Center (NRC)**, created in 1972 at the same time as DEP, and the center is the primary location of GIS work in the state. With 35 staff workers, NRC is also Connecticut's Geological and Natural History Survey, and includes divisions working on various functions including earth materials, hydrology, and biological sciences. NRC serves as DEP's research arm, and maintains environmental and natural resource information for use by the rest of DEP, in accordance with its original directive. In partial fulfillment of this mission, NRC annually publishes the *Natural Resources Information Directory and List of Publications*, which provides a comprehensive inventory of information resources, including some digital geographic data.

The Natural Resource Center is the lead agency in an effort with the Department of Health Services to test correlations of radon occurrence at various concentrations with geophysical data and geologic materials.

NRC includes the **GIS and Cartography Section** which provides GIS services for NRC and DEP. The section's goals have included developing and maintaining a standardized digital cartographic database that can be used not only by DEP, but also by municipalities, regional planning agencies (RPAs), other state agencies, federal agencies, and others. The section also provides GIS technical support, application development, and training, and sometimes develops custom maps for NRC use.

The Cartography Section is included in NRC's general operating budget, with all of its staff and hardware and software costs funded from general appropriation. GIS was originally purchased with funds from the Water Resource Planning Program. Annual expenditures for GIS in NRC are approximately \$400,000, with approximately \$200,000 in additional funds allocated for GIS by other parts of DEP. Approximately half of these expenditures are supported by general appropriation. The other half is funded by federal agencies for specific projects and data development efforts. The majority of these funds are from the U.S. Environmental Protection Agency (EPA), and some are from USGS and the Soil Conservation Service (SCS).

While the GIS Section works on a variety of GIS projects with other parts of NRC and DEP, it does not operate as a cash reimbursed service center. Funding has been limited due to Connecticut's severe financial condition, and results of budget cutting are not fully known in terms of impact on GIS activities.

DEP has six full-time staff positions in the GIS and Cartography Section, plus one cartographer. An additional four staff members in NRC also use GIS from 10% to 40% of their time. The Long Island Sound Resource Center is a satellite office of the center, and has a staff of the equivalent of 1.5 persons working with GIS. Throughout other DEP bureaus, an equivalent of another 7.5 staff positions work with GIS.

NRC began installation of a Data General MV15000 minicomputer dedicated for GIS and its section in 1990. It uses ARC/INFO software, and has five terminals and an electrostatic plotter. Since 1986, GIS had operated on NRC's other DG computers along with other data processing applications. NRC also uses two SUN workstations with ARC/INFO, and is part of the Data General computer network. NRC also has four pcARC/INFO sites. NRC's Long Island Sound Resource Center has another SUN workstation with ARC/INFO. In addition, other DEP bureaus have four terminals connected to the Data General computer. The Bureau of Air Management has a DG workstation and an electrostatic plotter. The Bureau of Water has a SUN workstation that also runs with ARC/INFO. Plans are to develop a distributed network of workstations. State bond funds will be used to house DEP in a new building where data processing and the network can be accomplished.

The GIS Section's major efforts have been concentrated on developing a digital database for the state, known as the *Connecticut Standardized Digital Cartographic Data Base*, with the 1:24,000 scale adopted as the state's base scale, and DLGs as a standard. NRC contributed approximately \$500,000 to the cooperative mapping program with USGS in order to complete updated topographic map and DLG coverage for the state's 116 quadrangles. Data at this scale includes administrative boundaries, hydrography, and transportation. Funding is limited for further work with USGS. Attributes are being added to the DLGs, including a major undertaking to have comprehensive and consistent naming which goes beyond USGS's Geographic Names Information System.

Soils digital data has been under development with a 1:15,840 scale base to develop a statewide soil survey, partially funded in the past by the legislature and SCS. Some of this work was conducted by outside contractors using SCS stan-

dards, and SCS conducted field work. Funding has been limited for further soils work, and data digitizing is now performed on a case by case basis as is possible. Statewide land cover and land use coverage is being developed in cooperation with the University of Connecticut using Landsat thematic mapper imagery, under U.S. EPA funding through the Long Island Sound Study. NRC has also acquired Census TIGER data. Other digital data is mainly for water resource planning and management, including water supply reservoirs and watersheds, major stratified drift aquifers, public water supply wells and service areas, and significant wetlands.

NRC has adopted some internal policies, standards, and a data directory (see **Coordination Efforts, Groups and Activities**, Policies/Standards). It also published *Examples of GIS Applications and Data* in 1989, which includes examples of how GIS is used to support management, planning, regulatory and research programs in the department. NRC and the Homer Babbadge Library at the University of Connecticut are Connecticut's co-affiliates in USGS's Earth Science Information Center (ESIC) program. Efforts are underway to develop digital data archives at the library, and to enable the library to serve as a clearinghouse for the distribution of NRC's digital database. Negotiations are underway with the state of Rhode Island and its "Rhode Island GIS" and DEP to sign an agreement to share digital data between the systems (see **Coordination Efforts, Groups and Activities**).

Applications

GIS services have been used in DEP since 1986 after a successful demonstration effort with USGS, known as the *Mystic Project* (see **Origins of State Initiatives**). Under legislative direction to develop water data, and with original GIS funding for water resource planning and management that protects water quality and potable water supplies, many applications have been developed in this regard with the Bureau of Water Management and the Department of Health Services (DHS) (see below). Other natural resource digital data is under development for application in NRC and the rest of DEP.

NRC is the lead agency in an effort with DHS to test correlations of radon occurrence at various concentrations with geophysical data and geologic materials. A comprehensive radon database has been developed by DEP, DHS and USGS. Analyses using GIS have helped predict the geological likelihood of radon in residential houses. Analyses have shown a strong relationship between aeroradioactivity mapping and basement radon testing, enabling the development of statewide radon potential mapping. Town radon assessment

maps have been developed which summarize available data and provide statistical analyses for local areas.

NRC's **Long Island Sound Resource Center** is a satellite office concentrating its work on creating digital resource maps of Long Island Sound. It is collocated with the University of Connecticut's Marine Sciences Institute. The center was established as a clearinghouse for information about the area, including various literature, maps and data. Digital efforts include geology, shorelines, marine sediments, bottom types, bathymetry, shellfish areas, and others. The center is interfacing ARC/INFO with a library cataloging system to provide a geographic reference for published reports.

In addition to NRC's activities, the **Branch of Environmental Quality** is becoming increasingly active with GIS. Its **Bureau of Water Management (BWM)** is the largest user of GIS outside of NRC, and work is conducted in cooperative efforts. GIS projects include water quality classification revisions, aquifer protection, and wetlands permit inventory efforts.

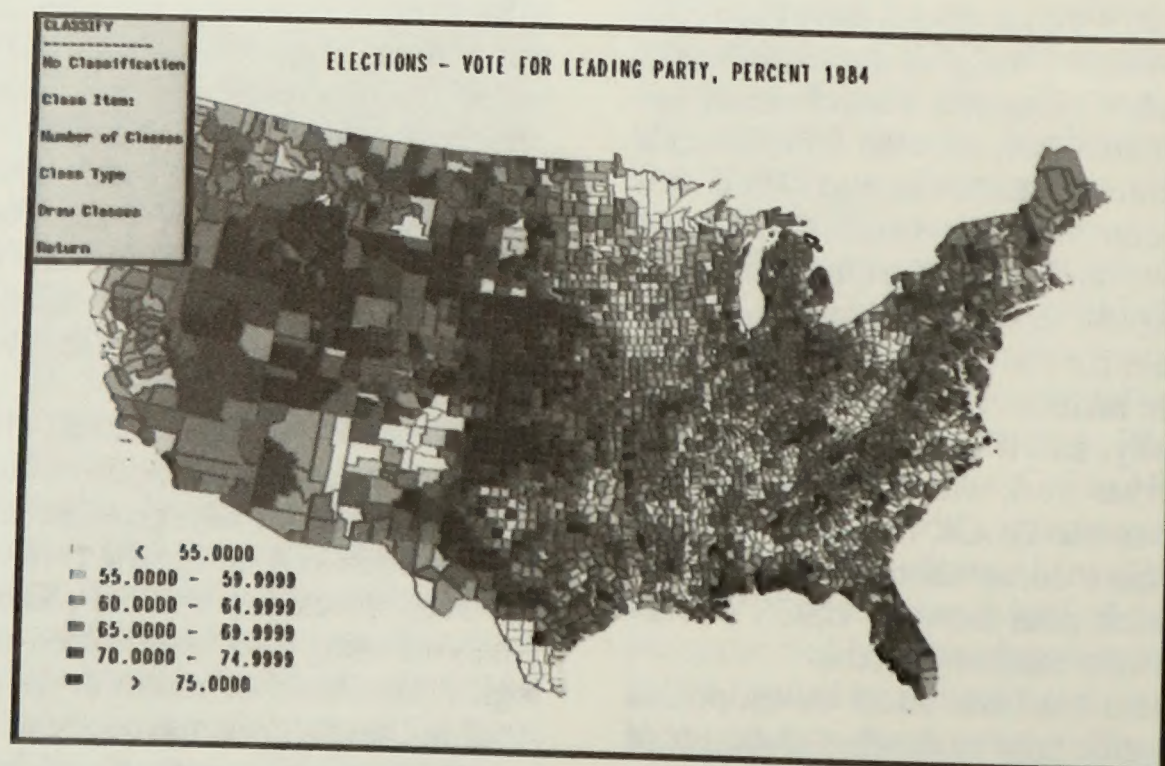
BWM is responsible for maintaining water quality suitable for potable and nonpotable use in Connecticut. This mandate requires a thorough and current understanding of past, present, and future surface and groundwater use, and has resulted in the Connecticut Water Quality Classification Program. To address this need, DEP and the Department of Health Services (DHS) began working together to establish the Water Supply Shared Data Base. Rapid retrieval, analysis and mapping of wells, reservoirs, watersheds, and service areas are possible by location, enabling various water programs to meet their missions in an integrated

fashion. A digital mapped version of Connecticut's water classification system and updates are being developed to reflect state water quality policy.

Connecticut has seven regional public water supply management areas. Within each region, a Water Utility Coordinating Committee (WUCC), including public, private and regional water utilities, and state and regional agencies, is responsible for coordinating water supply planning efforts. Each WUCC is required by statute to prepare a planning document that details needs and problems of its area. As part of water resources planning and management efforts, agreements have been signed with regional planning agencies (RPAs) to assist municipalities and to develop digitized data (see **Coordination Efforts, Groups and Activities**, Regional and Local Governments).

An aquifer protection program was authorized by the legislature and requires DEP, RPAs, municipalities and other utility operators to work together to meet this need. For three of the seven WUCCs — including the high priority Upper Connecticut River and South Central Public Water Supply Management Areas — a 1:24,000 database is being assembled. GIS is used to produce detailed maps of existing and proposed conditions. Benefits of using GIS in the process include identification of discrepancies and conflicts in existing and proposed exclusive area boundaries. Information from these groundwater protection programs is being collected by DEP and becomes part of its digital database. Funding for these efforts is limited by state government financial difficulties.

The **Division of Inland Water Resource Management** has one staff member and a SUN work-



station to assist in the Wetlands Permit Tracking Project. Wetlands regulation has been delegated to the local level. Municipal commissions are required to maintain wetlands maps. A program was designed to enter data from activity reports and locations in DEP's GIS. Plans are to develop a composite state wetlands map in coordination with SCS, possibly with some funding support from the Department of Transportation.

The Long Island Sound Study is a multi-agency effort with state and U.S. EPA funding. It has a full-time staff person working with GIS on the study. Data is being developed in-house and through contract, including land cover and land use data from imagery. The study is developing ways to automate collection of data in water. A Macintosh computer is being used to access data on NRC's GIS.

The **Bureau of Waste Management** is responsible for waste site identification, analysis, remediation and closure. GIS is used to assist in these efforts. The Bureau has the equivalent of 1.5 full-time staff members using GIS, with funding provided by U.S. EPA, which also funds related work at NRC. The bureau received additional waste site funding via a matching grant to develop additional data and to use GIS in site analyses and prioritizing work at waste sites. Plans are to use GPS to help locate sites.

The **Bureau of Air Management** has initiated use of GIS in a cooperative project with NRC to use GIS to evaluate relationships between auto emission testing failure rates and various demographic data. The intent is to use GIS to support other programs, including air quality modeling and determination of mobile source air pollution levels.

DEP's **Office of Land Acquisition and Management** is responsible for the Open Space Land Acquisition Program. This effort is a \$100 million program funded over a five-year period to purchase lands. GIS is used to display the location of proposed property for acquisition, and its relationship to existing open-space land owned by the state and municipalities other aspects addressed include population density, roads, and others. A statewide map of DEP-owned land was created as part of this effort. The office expects to begin automating portions of the ranking criteria to assess the relative merits of individual properties.

The **Department of Health Services (DHS)** is using pcARC/INFO, and is working with DEP, SCS, and the University of Connecticut. DHS' system is expected to be included in the network with DEP in the future. DHS has been working with DEP on water supply database efforts since the mid-1980s (see DEP, Bureau of Water Management). As part of this effort, DHS is developing data with water utilities which covers sources and plans, including individual wells. This data

is being shared with DEP, and DEP is then using the data to assess potential environmental impacts. Another cooperative effort with NRC is the use of GIS to correlate cancer occurrences with environmental pollution problems. This study included numbers, types and locations of cancers, and as well analyzed the spatial distribution relative to sources of pollution.

The **Department of Agriculture** is using pcARC/INFO and is cooperating with NRC to develop a digital database of agricultural properties for which the department has purchased development rights through its farmland protection effort. The data is being used by DEP in open-space planning and will be used by the department to aid in decision-making regarding additional acquisitions.

The **Connecticut Hazardous Waste Management Service** is a quasi-public entity with the responsibility of locating a low-level radioactive site. The service contracted with the Bettele Corporation to conduct an extensive screening process and to identify recommended sites. Bettele is purchasing data from NRC, and provisions have been made that any data developed in the effort will be shared with DEP.

The **Department of Transportation (DOT)** is using an Intergraph system for CAD activities and has an annual budget of over \$600,000 for this effort. DOT is using 1:24,000 scale digital transportation data and Census information for planning purposes.

Academic Activities

The **University of Connecticut (UConn)**, **Central Connecticut State University**, and the **University of New Haven** all have GIS programs and laboratories with GIS facilities. UConn's College of Agriculture and Natural Resources has the Laboratory for Remote Sensing, which is conducting work with DEP and U.S. EPA to prepare statewide land cover and land use coverage. The College has a GIS Certificate program. NRC and UConn's Homer Babbadge Library at the University of Connecticut are Connecticut's co-affiliates in USGS's Earth Science Information Center (ESIC) program. Efforts are underway to develop digital data archives at the library, and to enable the library to serve as a clearinghouse for the distribution of NRC's digital database. NRC's Long Island Sound Resource Center is collocated with UConn's Marine Sciences Institute.

4 Documents List

Memorandum of Agreement

Memorandum of Agreement between the Central Connecticut Regional Planning Agency and

the State of Connecticut Department of Environmental Protection, Natural Resources Center, January 3, 1991.

This agreement is an example of similar agreements being signed by Connecticut's regional planning agencies and the Department of Environmental Protection (DEP), Natural Resources Center. In this document, the Central Connecticut Regional Planning Agency (CCRPA) and DEP agreed to assist the seven municipalities in the Central Connecticut Planning Region to meet requirements of Public Act 89-305, and to facilitate the completion of tasks required of the center by the same legislation. It provides that CCRPA will generate digitizing and editing of aquifer recharge area coverages in ARC/INFO format for recharge areas that impinge upon the seven municipalities in its region. CCRPA will use the center's quality standards, and will generate maps for these areas. The center is required to provide CCRPA with the latest versions of digital coverages for the ten quads and for all water company maps in CCRPA's area.

Reports/Publications

Directory of Digital Cartographic Data, DRAFT, GIS Program, Natural Resources Center, Department of Environmental Protection, February, 1990.

This document includes a description of the Department of Environmental Protection's Natural Resource Center and its Digital Cartographic Data Base. The document includes its general characteristics, how it is being developed, and how it may be of use to governmental agencies and other users of digital cartographic information. The directory also includes three pages of data-

base standards for accuracy and verification; the coordinate reference system; vertical and horizontal datums; and data documentation, including costs and formats.

Examples of GIS Applications and Data, GIS Program, Natural Resources Center, Department of Environmental Protection, October, 1989.

This document includes examples of how the Department of Environmental Protection's Natural Resource Center's GIS is used to support management, planning, regulatory, and research programs in the department. Its first section includes summary descriptions of applications, and maps depicting these applications. The second section contains examples of some of the standardized digital cartographic data that has been produced by the center and through cooperative programs with others.

Natural Resources Information Directory and List of Publications, Natural Resources Center and Geological and Natural History Survey, Connecticut Department of Environmental Protection, 1989-90.

This directory provides a comprehensive inventory of information available at the Department of Environmental Protection's Natural Resource Center. This information concerns land surface, earth materials, water resources, coastal resources, biology, digital cartographic data, and other data including regional agency information for various functions. For example, the document includes contact names, addresses and phone numbers for soil and water conservation districts and regional planning agencies. A list of publications of the center and the U.S. Geological Survey, a quadrangle information chart, and an index are also included.